

## REMARKS

### Claim Objection:

Claim 4 stands objected to for an informality in the use of “a” versus “the.” Specifically the Examiner requests the replacement of “a second doped layer” with “the second doped layer.” Applicant respectfully submits that as the introduction of a second doped layer represents a new element in dependent claim 4, the use of the article “a” is proper. Applicant points out that claim 4 depends from claim 1 and not claim 2. If claim 4 depended from claim 2, Applicant submits the objection would be proper. However, since claim 4 does not depend from claim 2 the objection is improper and Applicant respectfully requests the Examiner reconsider this objection.

### Claim Rejections in light of AAPA:

Claims 1-7 are pending in the subject application. Claims 1-7 stand rejected as obvious over AAPA. The AAPA referenced by the Examiner consists of Fig. 1 and Fig. 2. These figures were labeled as “(Prior Art)” when initially filed as part of the application. Further, claim 4 stands rejected as obvious over Fig. 1 and Fig. 2 in view of Lai et al. (U.S. Patent No. 6,452,221).

According to the Examiner, AAPA Fig. 1 “fails to disclose a wide bandgap layer disposed substantially adjacent to the absorption layer.” The Office action further states that Fig. 2 “discloses a wide bandgap layer disposed substantially adjacent to the absorption layer.” Additionally, the Office action states that given the disclosure of AAPA Fig. 2, “it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of AAPA Fig. 1 to avoid the introduction of defects into the intrinsic absorption layer as shown in AAPA Fig. 2.”

Applicant submits that there is no teaching in AAPA Fig. 1 or AAPA Fig. 2 that discusses defects in any of the layers in the semiconductor devices shown. In particular, neither Fig. 1 nor Fig. 2 suggests how defects in the intrinsic absorption layer may be avoided. The only teachings relating to ameliorating defects in semiconductor devices are taught by the Applicant. Additionally, other than the teachings of the Applicant’s claimed invention, there is no teaching in Fig. 1 or Fig. 2 suggesting their combination.

The Office action fails to point out and Applicant fails to find any suggestion or motivation in either AAPA Fig. 1 or Fig. 2 to combine the references. Fig. 1 does not

suggest any unresolved challenges or limitations associated with a given photodiode structure, and Fig. 2 does not suggest any reason to modify another semiconductor device to incorporate one or more of its features. Although, the statement on page 3 of the action asserting that, “it would have been obvious to one having ordinary skill in the art at the time the invention was made to made to modify the device of AAPA Fig. 1 to avoid the introduction of defects into the intrinsic absorption layer as shown in AAPA Fig. 2.” may or may not have been the motivation driving the inventor in the instant case, the only potential teaching for any such motivation is Applicant’s own patent application.

Using Applicant’s own invention to supply the motivation for combining references is inappropriate. Applicant submits that the examiner is applying *hindsight* as supplied by the *Applicant’s own invention*, to supply the motivation for combining references. As stated in MPEP §2143.01, “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” In re Mills, 916 F.2d 680, 16 USPQ 1430 (Fed. Cir. 1990). As that section further states, “Although a prior art device ‘may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.’” In re Mills, 916 F.2d at 682. See also In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Applicant further points out that given the differing constituent layers and structural configurations shown in Fig. 1 and Fig. 2, these figures could be combined in a variety of different ways. For example, the intrinsic InP layer 20 and the associated diffusion region 40 of Fig. 2 could be inserted in Fig. 1 in lieu of layer 68 and a portion of layer 76. In the absence of a technical motivation or specific scientific data, simply selecting one advantageous combination of figures 1 and 2 cannot form the basis for an obviousness rejection. Further, simply selecting the combination that the Applicant teaches based upon the disclosure of the patent application is improper according to MPEP §2143.01.

Neither AAPA Fig. 1 nor AAPA Fig. 2 teach or suggest “a wide bandgap layer disposed substantially adjacent to the absorption layer; a first doped layer having a first conductivity type disposed substantially adjacent to the wide bandgap layer; and a passivation region disposed substantially adjacent to the wide bandgap layer and the first

doped layer,” as recited in claims 1-7. Further, since there is no objective suggestion or motivation in either of AAPA Fig. 1 or AAPA Fig. 2. to combine those references, Applicant respectfully requests that the Examiner reconsider his rejection and pass those claims to allowance.

Additionally, because claims 2-7 depend from claim 1 and recite further limitations thereon, Applicant also requests that the Examiner pass those claims to allowance. If the Examiner maintains the rejection of claims 1-7, Applicant respectfully requests that the Examiner point out with specificity the motivation disclosed in the cited references (AAPA Fig. 1 and AAPA Fig. 2) that supports the asserted combination. Applicant submits that claim 1 is allowable and claims 2-7 are allowable as depending from an allowable base claim.

Applicant therefore submits that all pending claims are in condition for allowance, and respectfully request reconsideration of the rejections.

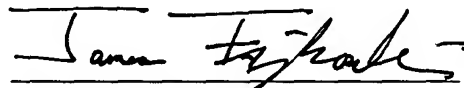
The Applicant respectfully requests that the Examiner contact the Applicant’s representative at the number below prior to responding to the action if it would expedite the favorable prosecution of the present application.

Applicant believes that no additional fees are due upon entry of this Response. However, in the event that any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Attorney’s Deposit Account No. 20-0531.

Respectfully submitted,

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